



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

JUL 16 2007

REPLY TO THE ATTENTION OF:

WW-16J

Marylou Renshaw, Branch Chief  
Indiana Department of Environmental Management  
100 North Senate Avenue  
Indianapolis, IN 46204

DEM  
OFFICE OF  
WATER QUALITY  
2007 JUL 23 P 12:05

Dear Ms. Renshaw:

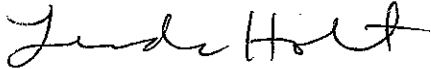
The United States Environmental Protection Agency (U.S. EPA) has conducted a complete review of the final Total Maximum Daily Load (TMDL), including supporting documentation and follow up information, for the Limberlost Creek Watershed TMDL in Jay County, addressing the phosphorus, nitrogen, and total suspended solids (TSS) impairments in 11 segments in Assessment Unit (AU) 05120101050 050 (INB0155\_00, INB0155\_01, INB0155\_T1002, INB0155\_T1003, INB0155\_T1005, INB0155\_T1007, INB0155\_T1008, INB0155\_T1009, INB0155\_T1010, INB0155\_T1011, and INB0155\_T1012) and 9 segments in AU 05120101050 060 (INB0156\_00, INB0156\_01, INB0156\_T1002, INB0156\_T1003, INB0156\_T1004, INB0156\_T1005, INB0156\_T1007, INB0156\_T1008, and INB0156\_T1009). Limberlost Creek is located in east-central Indiana. Based on this review, U.S. EPA has determined that Indiana's 60 TMDLs will address impairments to Aquatic Life Use Support (ALUS) designated uses, by reducing nutrients and TSS, meeting the requirements of Section 303(d) of the Clean Water Act (CWA) and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, U.S. EPA hereby approves Indiana's TMDLs for the Limberlost Creek Watershed for phosphorus, nitrogen, and TSS. The statutory and regulatory requirements, and U.S. EPA's review of Indiana's compliance with each requirement, are described in the enclosed decision document.

500



We wish to acknowledge Indiana's effort in submitting this TMDLs, addressing the ALUS impairment, and look forward to future TMDL submissions by the State of Indiana. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Linda Holst".

Linda Holst  
Acting Director, Water Division

Enclosure

cc: Staci Goodwin, IDEM



## **DECISION DOCUMENT FOR APPROVAL OF THE LIMBERLOST CREEK WATERSHED TMDL IN INDIANA**

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

### **1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking**

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired waterbody is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and

(5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:

*Location Description:* The Limberlost Creek Watershed is located in the headwaters of the Wabash River in east-central Indiana near the Ohio border, in Jay and Adams Counties, (Figure 1 of the TMDL submittal) covering twenty segments in two Assessment Units (AUs) listed as impaired in Indiana's 2006 303(d) list for impaired biotic community (Table 1 on the following page). These TMDLs address the impaired biotic community by allocating loads for the nutrients phosphorus and nitrogen, and Total Suspended Solids (TSS). The segments are in HUCs 0501201010500, 050 and 060, totaling a 43 square mile watershed, with the primary population centered in Bryant and Geneva. The impaired segments are included in the TMDL submittal in the Introduction Section and listed on the following page.

*Topography and Land Use:* The TMDL states in the Land Use Section 2.3 that as of the early 1990s, approximately 82-86% of the landuse in the Limberlost Creek Watershed is row crops in segments 050 and 060, respectively, and the remaining is approximately 9% pasture/hay, 5-7% deciduous forest, and less than 1% each of wetlands, water, commercial/industrial/transportation, forest, residential, and other grasses. The topography is flat to gently rolling as a result of glaciation and the gradient is very slight. Limberlost Creek does not have any stream flow gauges, so a surrogate that has similar land use characteristics and proximity was used, the Little River watershed. Similar land use showing the comparison of the two watersheds is found in Table 6 in the TMDL submittal; Figure 5 shows proximity of the Little River watershed to the Limberlost Creek watershed. U.S. EPA concurs with the use of the Little River watershed as a surrogate.

*Pollutant of concern:* The pollutants are numerous in the TMDL study area, but those addressed in this TMDL are phosphorus, nitrogen, (from agriculture and livestock feeding practices), and total suspended solids (TSS). More details about other pollutants can be found in the Limberlost multivariate analysis (Morris et al., 2003)<sup>1</sup>, which was one of the tools used to assess the impairment of Limberlost Creek. Fish community sampling was performed and water quality data were sampled by IDEM for 38 different parameters in 2003. More than 50 percent of the watershed failed to meet established criteria for biological integrity and is impaired.

*Pollutant sources:* Section 4.0 of the TMDL states that the point sources in the Limberlost Creek Watershed are the Wastewater Treatment Plant (WWTP) in Bryant and four Concentrated

---

<sup>1</sup> Morris, C.C., Ratcliff, B.L., Buening, J.K., Kroeker, T.S., Sobat, S.L., Butler, J.W. and Newhouse, S.A. 2003. A multivariate approach to source identification of biological impairments in aquatic systems: A case study on the Limberlost Watershed, Jay County, Indiana. Indiana Department of Environmental Management, Office of Water Quality, Assessment Branch, Indianapolis, Indiana. IDEM 32/03/001/2004

Animal Feeding Operations (CAFOs): Scwieterman, Jounay Farms, Link, and Minnich Poultry, LLC. Neither the WWTP nor the CAFOs are considered to be major contributors to the pollutant sources. Straight pipe discharge occurs but is illegal so is given a zero wasteload. There are no Municipal Separate Storm Sewer Systems (MS4s) or Combined Sewer Overflows (CSOs) in the watershed.

**Table 1. 2006 303(d) List Information for the Limberlost Creek Watershed (adapted from Table 1 of the TMDL submittal, naming nutrients)**

Assessment Unit	Waterbody Segment ID	Waterbody Segment Name	Cause of Impairment	TMDL Pollutant(s)
05120101050050	INB0155_00	Limberlost Creek (Flowing Into Oh)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_01	Limberlost Creek (Flowing Out Of Oh)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1002	Wilson Creek-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1003	Wilson Creek	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1005	West Prong	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1007	Grissom Ditch (North Of Cr 930S)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1008	West Prong-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1009	Young Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1010	Hartzel Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1011	East Prong	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1012	Franks Drain	Impaired Biotic Communities	TSS, phosphorus, nitrogen
05120101050060	INB0156_00	Limberlost Creek (Upstream Of Perry Ditch)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_01	Limberlost Creek (Downstream Of Perry Ditch)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1002	Haffner Ditch-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1003	Haffner Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1004	Davison Ditch-Glenzter Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1005	Montgomery Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1007	Metzner Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1008	Wheeler Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1009	Perry Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen

Note: TSS = Total Suspended Solids

The primary sources of nutrient pollutant load into the Limberlost Creek are agricultural, including runoff from pasture and livestock operation, fertilizer and manure spreading,

application of waste products, atmospheric deposition, and animal excreta. Total suspended solids load is generated from bare field and streambank erosion.

Section 4.1.2 in the TMDL continues with description of Confined Feeding Operations (CFOs) as another primary pollutant point source. However, though CAFOs are a point source, CFOs are *not* a point source by federal regulation, only by state regulation. CFOs are regulated by Indiana law, which defines a confined feeding operation as any livestock operation engaged in the confined feeding of at least 300 cattle, or 600 swine or sheep, or 30,000 fowl, such as chickens, ducks and other poultry. The Indiana Department of Environmental Management (IDEM) regulates these confined feeding operations under IC 13-18-10, the Confined Feeding Control Law. Draft rules regulating confined feeding operations were re-adopted by the Water Management Board on November 14, 2001 and became effective on March 10, 2002 (327 IAC 16). In this watershed there are 300 dairy cows, 14,962 swine, and 1,546,000 chickens. Figure 11 and Table 9 in the TMDL are a map and list of the CFOs. U.S. EPA recognizes nonpoint sources as the CFOs, runoff from manure application from CFOs and CAFOs, and septic systems. Failing or illegally connected septic systems occur in approximately 80% of the onsite septic systems.

*Future growth trends:* The main population centers are Bryant and Geneva, with a total of 2,500 people in the watershed. The population decreased in Bryant between 1990 and 2000 and increased in Geneva in the same time interval, for an overall increase of population in the watershed area of 3.28%.

*Priority Ranking:* The Introduction, Section 1 of the TMDL submittal, states that the Limberlost Creek watershed was prioritized for TMDL development to take advantage of the multivariate analysis conducted by the IDEM by Morris et al., mentioned on the previous page.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this first element.

## **2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target**

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality



target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comment:

*Use Designation:* Section 3.1 of the TMDL submittal states the impaired designated use for the waterbodies in the Limberlost Creek watershed is the aquatic life use.

*Narrative Standards:* Indiana has both numeric and narrative criteria. For development of this TMDL, the narrative biological criterion states “all waters, except those designated as limited use, will be capable of supporting a well-balanced, warm water aquatic community” [327 IAC 2-1-3(2)]. The water quality regulatory definition of a “well-balanced aquatic community” is “an aquatic community which is diverse in species composition, contains several different trophic levels, and is not composed mainly of strictly pollution tolerant species” [(327 IAC 2-1-9(49))].

*Numeric Standards/Targets:* There are no numeric standards for the phosphorus, nitrogen and TSS. Rather, targets are set based on IDEM adopting nutrient benchmarks. Benchmarks are shown below, and a segment may be considered impaired for nutrients based on whether two or more benchmarks are exceeded. The TSS target is chosen to ensure consistency with IDEM’s National Pollutant Discharge Elimination System (NPDES) permitting process, and will result in attainment of the water quality standards and designated uses.

- Total phosphorus should not exceed 0.3 mg/L.
- Nitrate + nitrite should not exceed 10 mg/L (Indiana Drinking Water Standard).
- Dissolved oxygen should not be below the water quality standard of 4.0 mg/L and should not be consistently close to the standard (i.e., in the range of 4.0 to 5.0 mg/L). Values should also not be consistently higher than 12.0mg/L and average daily values should be at least 5.0 mg/L per calendar day.
- No pH values should be less than 6.0 or greater than 9.0. pH should also not be consistently close to the standard (i.e., 8.7 or higher).
- Algae growth should not be “excessive” based on field observation by trained staff.
- TSS 30mg/L.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this second element.

### **3. Loading Capacity - Linking Water Quality and Pollutant Sources**

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Comment:

*Loading capacity:* the loading capacity is:  $LC = TMDL = WLA + LA + MOS$

The TMDL was calculated using the daily loading capacities on a per month interval, to indicate the differences in reduction at different times of the year, reflecting seasonal hydrological changes. The values on the following page in Table 2 have a calculated range, median and mean for phosphorus, nitrogen, and total suspended solids. Individual months' daily loads are incorporated into this document by reference, see Tables 13 through 18 of the TMDL submittal. Overall, phosphorus must be reduced in all months except April, May, June and September from 46 – 86%. Nitrogen must be reduced only in July and August from 20 – 25%, and TSS must be reduced in all months except April and May from 31 – 79%.

**Table 2. Range, median and mean of loading capacity (TMDL)**

AU and impairment	LC Range kg/day	LC Median kg/day	LC Mean kg/day
AU 050 Total Phosphorus	4 – 21	17	14
AU 050 Total Nitrogen	123 – 712	582	475
AU 050 Total Suspended Solids	370 – 2,137	1,745	1425
AU 060 Total Phosphorus	4 – 23	19	16
AU 060 Total Nitrogen	135 – 783	639	522
AU 060 Total Suspended Solids	406 – 2,348	1918	1565

*Method for cause and effect relationship:* Section 5.0 of the TMDL states that the Generalized Watershed Loading Function (GLWF) model was used to develop the Limberlost TMDLs. The model is process-based and simulates precipitation-driven runoff and sediment delivery. Solid loads, runoff, and ground water seepage are used to estimate particulate and dissolved pollutants to a stream, based on pollutant concentrations in soil, runoff, and ground water. The strength of the model is that it can simulate both nutrients and TSS, and can address seasonal variations and critical conditions. The weakness is that it produces monthly outputs, but those can be converted to daily for the requirements of the TMDL.

*Critical conditions:* Both wet and dry weather conditions are critical for the conceptual model in describing how the pollutants behave in a natural environment and were considered when developing the model. The wet weather is critical related to increased concentrations from runoff, and the dry seasonal condition is critical because it concentrates contaminants.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this third element.

#### **4. Load Allocations (LAs)**

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

##### Comment:

*Load Allocations:* Tables 13 through 18 are the TMDLs for each pollutant in each AU and includes baseline values, allocations, and percentage reductions. Table 3 on the following page is a summary of the LA percentage reductions needed on a monthly analysis of daily load, summarized from Tables 13 through 18 in the TMDL submittal. Note that overall the greatest reductions is for Total Phosphorus (TP) in both AUs. Reduction needs to occur most months of the year, from July through March, except September. The reduction of Total Nitrogen (TN) only needs to occur in July in both AUs and also in August in AU 060. TSS is similar to phosphorus in that it needs reduction from June through March.

Table 4 on the following page is a summary of the LA per day, on a monthly basis. The table is a summary of Tables 13 through 18 in the TMDL submittal.

**Table 3. Nonpoint source reduction per assessment unit, based on existing load/ target load, compiled from Tables 13-18 in the TMDL submittal.**

Month	% reduction AU 050 TP	% reduction AU 050 TN	% reduction AU 050 TSS	% reduction AU 060 TP	% reduction AU 060 TN	% reduction AU 060 TSS
Apr	0	0	0	0	0	0
May	0	0	0	0	0	0
Jun	0	0	31	0	0	24
Jul	86	22	77	86	20	77
Aug	46	0	79	90	25	77
Sep	0	0	79	0	0	77
Oct	79	0	62	78	0	66
Nov	63	0	37	61	0	32
Dec	63	0	57	62	0	55
Jan	71	0	65	69	0	66
Feb	74	0	67	73	0	64
Mar	66	0	66	64	0	54

**Table 4. Load allocation per assessment unit, compiled from Tables 13-18 in the TMDL submittal.**

Month	LA kg/day AU 050 TP	LA kg/day AU 050 TN	LA kg/day AU 050 TSS	LA kg/day AU 060 TP	LA kg/day AU 060 TN	LA kg/day AU 060 TSS
Apr	19	708	2115	21	779	2325
May	15	578	1724	17	635	1895
Jun	14	538	1606	16	592	1765
Jul	10	396	1178	11	434	1291
Aug	3	163	480	4	180	528
Sep	2	119	348	2	131	383
Oct	5	243	720	6	268	792
Nov	9	346	1029	10	381	1131
Dec	16	599	1789	18	658	1962
Jan	16	595	1776	18	654	1952
Feb	18	664	1983	20	728	2174
Mar	19	703	2099	21	773	2307

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this fourth element.

## 5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be

achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

**Comment:**

**Wasteload Allocation (WLA):** IDEM determined that no reductions are needed for TP, TN, and TSS for any existing discharger. Table 5 below is a summary of the WLA per day. The values are from existing permitted values and future growth, and are the same for all the months. The table is a summary of Tables 13 through 18 in the TMDL submittal. Straight pipe discharge and CAFOs are given a zero wasteload; for CAFOs the “zero” is based on the CAFO requirements for proper design, construction, operation and management for containment of manure during a 25 year, 24 hour precipitation event. Section 4.1.3 states there are no combined sewer systems nor MS4s in the watershed.

**Table 5. Wasteload allocation per assessment unit, compiled from Tables 13-18 in the TMDL submittal.**

Month	WLA kg/day AU 050 TP	WLA kg/day AU 050 TN	WLA kg/day AU 050 TSS	WLA kg/day AU 060 TP	WLA kg/day AU 060 TN	WLA kg/day AU 060 TSS
April thru March	2	4	21	2	4	23

Table 12 in the TMDL is the allocation for the Bryant Municipal Sewage Treatment Plant; it is the only point source in AU 060. Though the title of the table states that the values are “for informational purposes only, not intended to be included in the next permit”, IDEM has since stated that this statement is in error (personal communication with Staci Goodwin, July 10, 2007.) The statement was made in anticipation of Indiana adopting nutrient criteria, but the WLA are currently valid. The calculation is based on design flow and permit limits meeting current regulatory conditions, but may change based on future development of nutrient standards. The plant’s WLA is 2 kg/day TP, 4 kg/day TN, and 23 kg/day TSS. All the allocations are below the limit. (Note that the WLAs for Bryant were specified for every month of the year because the plant is allowed to discharge whenever the receiving stream flow is sufficient to accommodate a 10:1 dilution ration and this could potentially occur in any month.) The WLA for AU 050 is for future growth, as there is no point source currently discharging.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this fifth element.

## **6. Margin of Safety (MOS)**

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1) ). EPA’s 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the

analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:

The Margin of Safety Section of the submittal states that for TP, TN, and TSS targets, IDEM determined a 15% explicit margin of safety, derived by using 15% less than the stated numerical criteria, such as a 8.5 mg/l target for TN rather than 10.0 mg/l. USEPA agrees that this is sufficient because of the generally good calibration and validation of the GWLF model (Appendix A of the TMDL submittal). This indicates that the model fairly represents the watershed, and therefore serves to reduce uncertainty.

EPA finds that the TMDL submittal from IDEM contains an appropriate MOS satisfying all requirements concerning this sixth element.

## **7. Seasonal Variation**

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1) ).

Comment:

The Seasonal Variation Section 6.6 of the TMDL submittal inherently addresses seasonality by using seasonal variation in hydrologic conditions and source load in the model. Seasonality is further addressed by calculating the allocations on a monthly basis, which shows the variation in reduction depending on what month the exceedences occur.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this seventh element.

## **8. Reasonable Assurances**

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the

load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:

Reasonable Assurances are in Section 8.0 of the TMDL submittal. Beyond the implementation of Best Management Practices (BMPs), reviewed later in this document, the activities include the following: IDEM assures compliance with permits of NPDES dischargers, CFOs and CAFOs. Friends of the Limberlost, an organization interested in benefiting the forests, wetlands and community of Geneva, is restoring 1399 acres of wetlands and associated uplands that it has purchased, and plans to purchase more acreage in the future to secure contiguous restored wetlands. BMPs may be implemented with or without a watershed management plan, but would be enhanced with one. The Jay County Soil and Water District is also very interested in improving the appearance and water quality of the Limberlost.

EPA finds that this criterion has been adequately addressed.

**9. Monitoring Plan to Track TMDL Effectiveness**

*EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:

The Monitoring Section 9.0 of the TMDL submittal states that monitoring will occur on the 5-year rotating basin schedule or when some of the TMDL implementation is in place. Monitoring will be adjusted as needed for continued source identification and determination whether standards are being met.

EPA finds that this criterion has been adequately addressed.

## **10. Implementation**

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

### Comment:

There are several suggestions for implementation of BMPs in the TMDL watershed in Section 8.0. They include structural or managerial practices such as:

- riparian management to protect streambeds and riverbanks;
- manure collection and storage that protects surface water and ground water from runoff;
- planting of contour row crops perpendicular to the slope of the land;
- manure nutrient testing to prevent over-application and runoff;
- drift fencing to keep animals out of streams;
- pet clean-up in urban areas; and,
- septic management and removal of illicit dischargers.

EPA finds that this criterion has been adequately addressed.

## **11. Public Participation**

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii) ). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2) ).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

### Comment:

There was a kick-off meeting for the public on March 26, 2006 at the Anderson County Public Library. The draft TMDL was public noticed from March 9, 2007 to April 9, 2007. A



stakeholder meeting took place on March 15, 2007, at the Geneva Public Library, 307 E. Line Street, Geneva, Indiana. The presentation for the public meeting was included in the final TMDL submittal. Copies of the draft TMDL were posted on the IDEM's Web site at: <http://www.in.gov/idem/programs/water/tmdl/documents.html>. U.S. EPA sent in comments and they were adequately addressed in the final TMDL. There was one public comment received and it is located in Appendix C of the TMDL.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this eleventh element.

## **12. Submittal Letter**

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

### Comment:

EPA received the Final Limberlost Creek Watershed TMDL on June 26, 2007 accompanied by a submittal letter dated June 26, 2007. In the submittal letter, IDEM stated the submission includes the final TMDLs for 303(d) list AUs 05120101050 050 and 060. Segment IDs in 050 are INB0155\_00, INB0155\_01, INB0155\_T1002, INB0155\_T1003, INB0155\_T1005, INB0155\_T1007, INB0155\_T1008, INB0155\_T1009, INB0155\_T1010, INB0155\_T1011, INB0155\_T1012; in 060 the IDs are INB0156\_00, INB0156\_01, INB0156\_T1002, INB0156\_T1003, INB0156\_T1004, INB0156\_T1005, INB0156\_T1007, INB0156\_T1008, and INB0156\_T1009. The letter states that the Limberlost Creek Watershed is impaired for *E. coli* and Impaired Biotic Communities. The TMDL addresses phosphorus, nitrogen, and TSS.

## **13. Conclusion**

**After a full and complete review, EPA finds that the IDEM submittal determines standard-based concentrations for a total of 60 TMDLs for the Limberlost Creek in Jay County, Indiana. The allocations satisfy all of the elements of an approvable TMDL. This approval is for the waterbody segments and impairments of phosphorus, nitrogen (both nutrients), and TSS in the Table on the following page, also shown on page 3 in Section 1 of this document.**

**Table 1. 2006 303(d) List Information for the Limberlost Creek Watershed**

Assessment Unit	Waterbody Segment ID	Waterbody Segment Name	Cause of Impairment	TMDL Pollutant(s)
05120101050050	INB0155_00	Limberlost Creek (Flowing Into Oh)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_01	Limberlost Creek (Flowing Out Of Oh)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1002	Wilson Creek-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1003	Wilson Creek	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1005	West Prong	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1007	Grissom Ditch (North Of Cr 930S)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1008	West Prong-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1009	Young Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1010	Hartzel Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1011	East Prong	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0155_T1012	Franks Drain	Impaired Biotic Communities	TSS, phosphorus, nitrogen
05120101050060	INB0156_00	Limberlost Creek (Upstream Of Perry Ditch)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_01	Limberlost Creek (Downstream Of Perry Ditch)	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1002	Haffner Ditch-Unnamed Tributary	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1003	Haffner Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1004	Davison Ditch-Glenzter Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1005	Montgomery Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1007	Metzner Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1008	Wheeler Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen
	INB0156_T1009	Perry Ditch	Impaired Biotic Communities	TSS, phosphorus, nitrogen